		...cs	Search Text	DBs	Time Stamp	Comments	Error Definition	Errors
38	BRS	4	user near3 affinity near5 image	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/08 16:59			0
39	IS&R	2	("6317722").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:30			0
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41	BRS	4338	significan$5 with affinity	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:30			0
42	BRS	1	(significan$5 with affinity) with entity	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:31			0
43	BRS	20	(significan$5 with affinity) same entity	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:31			0
44	BRS	30	(significan$5 with affinity) same itera$8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:32			0
45	BRS	30	((significan$5 with affinity) same itera$8) and similar$5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:38			0
46	BRS	157	(significan$5 with affinity) with similar$5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:38			0
47	BRS	11	((significan$5 with affinity) with similar$5) and itera$8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:40			0
48	BRS	2	affinity near8 significance near8 value	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:41			0
49	BRS	351	"affinity value"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:41			0
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52	BRS	0	"affinity value" and "significance value"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:42			0
53	BRS	112	affinity near8 significance	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:42			0
54	BRS	10	(affinity near8 significance) and iterat$8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 09:49			0

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57	BRS	0	"common subject matter" near8 significan$5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 10:27			0
58	BRS	0	"common subject matter" same significan$5 same affinity	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 10:27			0
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60	BRS	17	"common subject matter" same link	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 10:45			0
61	BRS	3	"6112202" and affinity	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 10:45			0
62	BRS	14	"6112202"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 10:47			0
63	IS&R	2	("6112202").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/09 10:47			0

US006356899B1

(12) **United States Patent**
Chakrabarti et al.

(10) **Patent No.: US 6,356,899 B1**
(45) **Date of Patent: *Mar. 12, 2002**

(54) **METHOD FOR INTERACTIVELY CREATING AN INFORMATION DATABASE INCLUDING PREFERRED INFORMATION ELEMENTS, SUCH AS PREFERRED-AUTHORITY, WORLD WIDE WEB PAGES**

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(73) Assignee: **International Business Machines Corporation**, Armonk, NY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/261,926**

(22) Filed: **Mar. 3, 1999**

Related U.S. Application Data

(63) Continuation-in-part of application No. 09/143,733, filed on Aug. 29, 1998.

(51) **Int. Cl.**[7] **G06F 17/30**
(52) **U.S. Cl.** **707/5**; 707/3; 707/4; 707/104
(58) **Field of Search** 707/1, 3, 4, 5, 707/104; 709/218, 219

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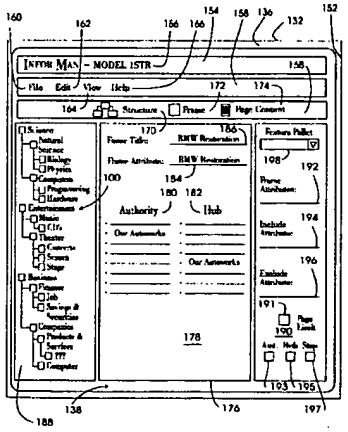
Primary Examiner—Diane D. Mizrahi
(74) *Attorney, Agent, or Firm*—John L. Rogitz

(57) **ABSTRACT**

A method for identifying, filtering, ranking and cataloging information elements; as for example, World Wide Web pages, of the Internet in whole, part, or in combination. The method is preferably implemented in computer software and features steps for enabling a user to interactively create an information database including preferred information elements such as preferred World Wide Web pages in whole, part, or in combination. The method includes steps for enabling a user to interactively create a frame-based, hierarchical organizational structure for the information elements, and steps for identifying and automatically filtering and ranking by relevance, information elements, such as World Wide Web pages for populating the structure, to form; for example, a searchable, World Wide Web page database. Additionally, the method features steps for enabling a user to interactively define a frame-based, hierarchical information structure for cataloging information, identifying a preliminary population of information elements for a particular hierarchical category arranged as a frame, based upon the respective frame attributes, and thereafter, expanding the information population to include related information, and subsequently, automatically filtering and ranking the information based upon relevance, and then populating the hierarchical structure with the a definable portion of the filtered, ranked information elements.

50 Claims, 19 Drawing Sheets



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United States Patent [19]

Kleinberg

[11] Patent Number: 6,112,202

[45] Date of Patent: Aug. 29, 2000

[54] **METHOD AND SYSTEM FOR IDENTIFYING AUTHORITATIVE INFORMATION RESOURCES IN AN ENVIRONMENT WITH CONTENT-BASED LINKS BETWEEN INFORMATION RESOURCES**

[75] Inventor: **Jon Michael Kleinberg**, Los Gatos, Calif.

[73] Assignee: **International Business Machines Corporation**, Armonk, N.Y.

[21] Appl. No.: **08/813,749**

[22] Filed: **Mar. 7, 1997**

[51] **Int. Cl.**[7] **G06F 17/30**

[52] **U.S. Cl.** **707/5**; 707/9; 707/101

[58] **Field of Search** 707/1, 2, 4, 5, 707/10, 100, 101, 102, 501

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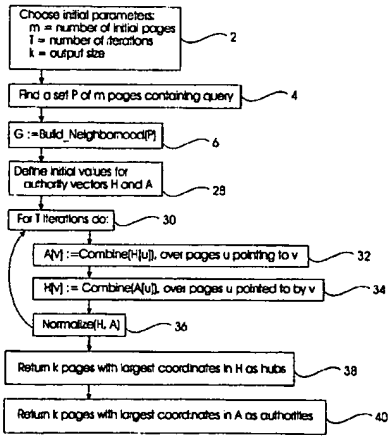
Attorney, Agent, or Firm—Khanh Q. Tran

[57] **ABSTRACT**

A system and method are provided for searching for desired items from a network of information resources. In particular, the system and method have advantageous applicability to searching for World Wide Web pages having desired content. An initial set of pages are selected, preferably by running a conventional keyword-based query, and then further selecting pages pointing to, or pointed to from, the pages found by the keyword-based query. Alternatively, the invention may be applied to a single page, where the initial set includes pages pointed to by the single page and pages which point to the single page. Then, iteratively, authoritativeness values are computed for the pages of the initial set, based on the number of links to and from the pages. One or more communities, or "neighborhoods", of related pages are defined based on the authoritativeness values thus produced. Such communities of pages are likely to be of particular interest and value to the user who is interested in the keyword-based query or the single page.

57 Claims, 5 Drawing Sheets



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